

# M.S. In Industrial Mathematics

## 1. Background Requirements

Students are required to make up background courses if they do not have sufficient undergraduate mathematics and computer science background. The minimum undergraduate requirements with no grade less than “C” and no more than two “C”s are:

MATH 3323 Differential Equations  
MATH 3373 Calculus III  
MATH 3377 Linear Algebra  
MATH 3380 Analysis I  
MATH 3398 Discrete Mathematics II  
MATH 4307 Algebra  
MATH 4315 Analysis II

In general, these requirements may be reduced if evidence is presented which shows that the applicant has taken equivalent courses elsewhere prior to enrollment at Texas State. Background work must be completed before enrolling in graduate courses.

## 2. Curriculum

### Core Courses **18 hours**

All students are required to take the following 18 hours of courses:

MATH 5301 Partial Differential Equations  
MATH 5345 Regression Analysis  
MATH 5355 Applied and Algorithmic Graph Theory  
MATH 5360 Mathematical Modeling  
MATH 5373 Theory of Functions of Real Variables  
And MATH 5376A Design & Analysis of Experiments or  
MATH 5376B Analysis of Variance

### Required Support Work Courses **6 hours**

All students must take 6 hours of graduate courses in one area of science other than mathematics. The following is a list of possible such concentration areas. Student’s selection of courses must be approved by the Graduate Advisor.

Computer Science      Biology      Technology  
Physics                      Chemistry

### Prescribed Elective Courses **6 hours**

All students are required to take at least of 6 hours from the following Mathematics courses. A student may choose to have a minor in the area of the required support work, in which case, only 3 hours of electives are needed from the following courses. Student’s selection of courses must be approved by the Graduate Advisor.

MATH 5305 Advanced Course in Probability and Statistics  
MATH 5307 Modern Algebra  
MATH 5312 Functions of a Complex Variable  
MATH 5313 Field Theory  
MATH 5317 Problems in Advanced Mathematics  
MATH 5336 Topics in Applied Mathematics  
MATH 5340 Scientific Computation  
MATH 5350 Combinatorics  
MATH 5358 Applied Discrete Mathematics

### Master's Thesis and Comprehensive Exam **6 hours**

All students are required to take the Master's degree thesis courses MATH 5399A and MATH 5399B and also take a written comprehensive exam.

**Total for the Degree      36 hours**